Having thus described the invention, what we claim is:

1. A method of rejecting nitrogen from a feed natural gas stream comprising methane and nitrogen so as to form a primary methane product, the mole fraction of nitrogen in the feed natural gas increasing over a period of time, the method comprising cooling said feed natural gas stream, rectifying said cooled natural feed gas stream, and withdrawing from the rectification a primary product methane stream and a secondary nitrogen-enriched product stream from the rectification, wherein said secondary nitrogen-enriched product stream has a mole fraction of methane at or above a chosen minimum value when the said mole fraction of nitrogen is at a minimum, and when the said mole fraction of nitrogen rises to a value at which the mole fraction of methane in the secondary nitrogen-enriched product stream falls below the chosen minimum, a part of the feed gas is introduced into the secondary nitrogen-enriched product stream so as to restore its mole fraction of methane to the chosen minimum value or a value thereabove.

2. The method as claimed in Claim 1, not employing any heat pumping from a colder region to a warmer region of the rectification.

3. The method as claimed in Claim 1, wherein all the refrigeration for the method is generated by Joule-Thomson expansion.

4. The method as claimed in Claim 1, wherein all the refrigeration for the method is generated by turbine expansion of one or more liquid streams.

5. The method as claimed in Claim 1, wherein all the refrigeration for the method is generated by a combination of turbine expansion of one or more liquid streams and Joule-Thomson expansion.

6. The method as claimed in Claim 1, wherein the rectification is performed in a double rectification column comprising a higher pressure rectification column, a lower pressure rectification column, and a condenser-reboiler placing the higher pressure rectification column in heat exchange relationship with the lower pressure rectification column.

7. The method as claimed in Claim 1, in which the primary product methane stream is withdrawn from the rectification in liquid state, is raised in pressure and is vaporised.

8. The method as claimed in Claim 7, in which at least part of the vaporisation of the primary product methane stream is performed by indirect heat exchange with the feed natural gas stream.

9. The method as claimed in Claim 1, in which the chosen minimum mole fraction of methane in the secondary nitrogen-enriched product stream is 0.4.

10. An apparatus for rejecting nitrogen from a feed gas stream comprising methane and nitrogen, comprising a feed natural gas pipeline for obtaining the feed gas stream from a source of a mixture of nitrogen and methane whose nitrogen mole fraction can increase with the passage of time, a main heat exchanger for cooling the feed natural gas stream in communication with the feed natural gas pipeline; a rectification column for rectifying the cooled feed natural gas stream having a first outlet for a primary product methane stream and a second outlet for a secondary nitrogen-enriched product stream, a first product pipeline communicating with the first outlet, and a second product pipeline communicating with the second outlet, wherein the apparatus additionally comprises a conduit able to be selectively opened so as to place the second product pipeline in communication with the feed natural gas pipeline.

11. The apparatus as claimed in Claim 10, wherein the rectification column is a double rectification column comprising a higher pressure rectification column, a lower pressure rectification column, and a condenser-reboiler placing the higher pressure rectification column in heat exchange relationship with the lower pressure rectification column.

12. The apparatus as claimed in Claim 11, additionally including a pump for withdrawing the primary product stream in liquid state from the lower pressure rectification column and for raising the primary product stream in pressure.